Observations of the Transit of Mercury, 1907 November 14

By E. T. Whitelow.

Made at Birkdale, Lancashire.

Long. W. 3° 1′ 37″.
Lat. N. 53° 26′ 48″.

Neither ingress nor egress was observed, owing to clouds.

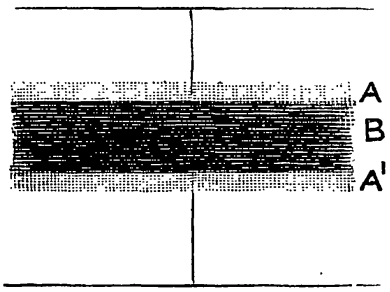
A. *Direct Observations* were made with 7⅓-in. refractor, stopped down to 4-in. A Thorp's polarising eyepiece: power 150. At 12h. 15m. G.M.T., Mercury showed a clean cut, round disc, with no indication of halo or bright spots. The duration of observation was half a minute or so of bright sunshine, and intermittent observations of a few seconds at a time when the Sun was slightly obscured by cloud, perhaps 2 minutes in all.

At 2h. 20m. there was a sudden burst of bright sunshine in a patch of clear blue sky. I put the edge of the Sun just outside the field of the eyepiece, uncrossed the prisms of the eyepiece so as to get the maximum light, and found Mercury in the field. It had much the appearance of Venus when in inferior conjunction, viz. a very thin curved line of light extending about 120° round the planet. There was no trace of this on the side away from the Sun, nor could I see *any* trace of the dark portion of Mercury contrasted against the sky.

B. *Spectroscopic Observation.* 12h. 48m. G.M.T.

Instrument 3½-in. refractor, Brashear grating, 15,500 lines per inch; 1st order. Power 120 and 180.

The planet was observed on the Sun's disc only, with the slit parallel to the direction of diurnal rotation. Along the centre of



the spectrum was seen a shaded band, consisting of a dark central band B, bordered by slightly lighter margins A, A^1. Each was about ¼ the width of the central darker band when Mercury was bisected by the slit. To make sure these were not due to dust lines, I pulled the clock slow-motion cord to and fro, and found these margins travelled with Mercury along the slit. I also slightly increased the opening of the slit, to clear it of any possible effect from dust lines. When I moved the telescope up or down in

declination, the central dark band B became relatively narrower than the margins A, A^1. Fraunhofer lines in A, A^1 exactly corresponded with those on the Sun's surface outside these margins. They were, however, very faint, or hazy, and difficult to focus, although lines on the Sun's surface were perfectly defined. I could not say they were wide, and the difficulty of focussing seemed to be due to lack of sufficient contrast as seen on the margins A, A^1.

The total duration of the Spectroscopic observations was about $1\frac{1}{2}$ minutes of brilliant sunshine and about 2 minutes of haze.

NOTE—*November* 18, 1907.—The foregoing observations having been submitted to Father Cortie, he suggested that the failure to see a lighter ring when Mercury was *on* the Sun's disc while making the observation A might be due to the polarised field of the Thorp eyepiece being then too dark to permit it to be seen.—E. T. W.

Observation du Passage de Mercure sur le Soleil le 14 Nov. 1907.
Par Robert Jonckheere, Observatoire de Roubaix.

La situation de l'observatoire est approximativement à 50° 40′ de latitude et à $3^m\ 19^s$ de longitude Est du méridien de Paris.

L'instrument utilisé pour les observations est une lunette équatoriale de 220 mm. diaphragmée à 150 mm. La distance focale est de $2^m{\cdot}50$. Le pied est faible et les trépidations rendent difficiles les mesures micromètriques. Le micromètre est bifilaire. Toutes les mesures ont été prises à l'aide d'un grossissement de 150, mais pour les observations visuelles des grossissements divers, variant de 70 à 600, ont été employés.

L'atmosphere pendant toute la durée du passage de la planète avait le zénith complètement dégagé de nuages mais l'horizon était brumeux. Le soleil étant à une hauteur de 30° en moyenne durant l'observation il a été par instants masqué de nuages, et c'est la raison pour laquelle le premier contact intérieur seul a pu être observé.

L'état atmosphèrique n'a pas permis de chercher à constater la présence de la planète avant son entré sur le disque du soleil.

Le 1^{er} contact extérieur n'a pu être observé et la planète n'a été aperçue que lorsque la moitié de son disque découpait le bord solaire.

Aucune déformation des cornes n'a été constatée bien que l'image se présentait à ce moment avec une grande netteté.

Aucun ligament ni pont n'a été remarqué au 1^{er} contact intérieur.

La planète était beaucoup plus noire que les taches solaires qui, en comparaison, paraissaient bleues. La corde tracée par Mercure était trop boréale pour occulter aucune de ces taches.

Aucun point obscur pouvant être considéré comme satellite n'a été observé.